THE K-STATE
Agronomist

Wheat State Agronomy Club members join northeast Kansas 4-H youth during a "Ride Smart" ATV clinic at Concordia Tractor, Inc. in Wamego. Club members demonstrated ATV safety and shared personal stories to help lower youth injuries related to ATV recreation. Participating club members were (left to right): Leah Ferdinand, Kevin Hecht, Scott Dooley, Rawly Kaufman, Nick Ward, Matt Wyckoff, Lindsey Voet, Matt Pachta, and Holly Weber.

Annual Report of the Department of Agronomy
Activities and Achievements of Faculty, Staff, Students, and Alumni
— Summer 2008 · No. 22 —
It is with great pleasure that I report to you that the Department of Agronomy has had another productive and exciting year. I would like to briefly outline some of the highlights here, so that you know I’m not just exaggerating, and would encourage you to see the details inside this edition of our newsletter.

The Department worked very hard this past year on our CSREES (USDA Cooperative State Research, Education, and Extension Service) review. A review team visited campus in March 2008, and we received the final report in May. We made a very favorable impression on the review team and they also had many excellent suggestions. I look forward to working with the Department to implement many of the ideas that will make us even better.

It was a tremendous year for recognition for our faculty and students – more than 20 campus, national, and international awards! One of the major awards was from the significant involvement of Chuck Rice with the U.N. Intergovernmental Panel on Climate Change (IPCC). The IPCC shared the Nobel Peace Prize with Al Gore for their work on climate change, so we now can claim a Nobel Prize for Agronomy! Meghan Buckley, graduate teaching assistant, won a national graduate student teaching award from the North American Colleges and Teachers of Agriculture. We are very proud of all of our award winners.

Early in 2008 we signed a formal agreement that will result in the commercialization of herbicide-resistant sorghum, a significant breakthrough for sorghum growers who need additional options for weed control. The sorghum was developed by Mitch Tuinstra and Kassim Al-Khatib. Using an accelerated schedule, we hope seed will be commercially available as soon as 2011.

Our crops, soil, and weed judging teams have been very active and have done well in many contests. The Soil Judging Team won the national championship this past year!

The coming year holds a great deal of promise. We will be busy implementing the ideas from the CSREES review. We have already experienced the retirement of some key faculty members and will have many more retirements in the near future. There will be many new faces in the Department in the years to come. There will be continued emphasis on fundraising for scholarships, opportunities for international experiences for our students, and special projects.

I hope that you enjoy the contents of the newsletter and look forward to another year working with the great people in the Department of Agronomy.

Gary M. Pierzynski
Professor and Head
USDA-CSREES Reviewers Give High Marks to Department

In March 2008, the Department underwent a periodic review and evaluation by a team of outside professionals for the USDA Cooperative State Research, Education, and Extension Service (CSREES).

The Review Team did a comprehensive analysis of all aspects of the department, listing strengths and weaknesses, and making key recommendations. The team’s overall impression of the department was very positive.

The following are excerpts from the Review Team’s final report.

**Teaching**

As one of only a few comprehensive teaching programs in Agronomy in the nation, this program is a jewel for K-State. The Department offers students opportunities for concentration in agricultural production and a broad range of the applied agronomic and environmental sciences. The undergraduate Agronomy student club is nationally known for its accomplishments and spirit.

**Strengths:**
- Traditional Agronomy Program. Not many are left; this is a jewel for K-State and the College of Agriculture.
- Exceptional reputation nationally for the strength of the Agronomy program.
- Strong science-based major options that cover the needs and interests of students interested in production and consulting careers, soil and environmental science careers, range science careers and plant genetics and breeding.
- Strong faculty in all areas of expertise who care about the students in the program.
- Exceptional student organization which provides learning and leadership opportunities for the majority of students in the department.
- Excellent scholarship support for students.
- Access to very good on-campus facilities and the Agronomy Learning Farm.
- Retention is very good, with less than 5% attrition once a student is in the program.
- Opportunities for employment and undergraduate research are exceptional.

**Cropping Systems**

The Review Team noted a seamless integration of Research and Extension that serves Kansas well. The Agronomy Department Experiment Fields are critical to the continued success of this team. An emphasis on biofuels research is necessary to meet increasing demands for fuel. This group is well placed to play a significant role in this important work.

**Strengths:**
- The cropping systems group is committed on the integration of Research and Extension.
- Collaboration within Manhattan-based cropping systems people and the Agronomy Field’s personnel is very good and important to the overall success of the cropping systems program.
- A positive approach to cropping systems research is use of both on-farm and Experimental Field sites for cropping systems research. The use of both small and large plots expands the breath of K-State cropping system research. On-farm research is an excellent way of engaging producers in applied research.
- Work on new and alternative crops to Kansas agriculture like cotton and canola are a positive sign of forward looking and a good use of resources.
- Agronomy fields are very important to the continued success of this team.

**Extension**

K-State Extension is well respected by state clients and by faculty peers. In addition, both undergraduate and graduate students value Extension faculty specialists and their expertise as important contributors to a K-State agronomy education.

**Strengths:**
- The Extension group at K-State Agronomy appears well-respected and valued. They are seen as relevant, and offering timely and useful information to clients.
- The Agronomy e-Update newsletter concept and approach is very effective and is valued by growers and agribusiness.

**Weed Science**

The Review Team notes the national status and excellence of K-State weed science. The weed science program addresses diverse topics within the discipline. Faculty are active at the national level in their professional societies and are successful in national funding programs. The program is attractive to students.

**Strengths:**
- Excellent collaboration, coordination, and planning among the weed scientists, area agronomists, and other departments in the college as well as outside the college.
- An excellent graduate student program.
- Research addresses critical issues in Kansas.
- Excellent Extension presence, including an ASA recognized publication on Glyphosate Stewardship.

**Range and Forage Science**

The range and forage program has a history of strong value to Kansas. The program rests on faculty who are essential to its function as currently designed.

**Strengths:**
- There is a significant support for range management programs by clientele represented by the Crop, Soil, and Range Council and the Stakeholders.
- The location of the Rannells research area enhances the ability of the range faculty to conduct complex grazing and ecophysiology research, and to automate the collection of large data sets.
- The part-time Extension Specialist has met critical educational needs for Kansas’ ranchers and agency professionals.
Plant Breeding & Genetics

Plant breeding in the Department supports both productivity and end-use value of major Kansas crops. Collaboration is excellent among the Agronomy Dept., the Plant Pathology Dept., and ARS/USDA. Collaborators have access to complementary expertise in classical breeding, cytogenetics, and molecular and quantitative genetics.

Strengths:
- The breeding and genetics program has a clear focus on major crops grown in the state and is addressing the needs in this area. Variety and germplasm releases are utilized by industry and other breeding programs.
- Breeding/Genetics Faculty have complementary expertise spanning conventional breeding, genomics, quantitative genetics and this is supplemented by considerable faculty expertise in USDA-ARS units and Plant Pathology.
- Strong support from crop commissions (sorghum, soybean, and wheat) and good record of extramural funding.
- The Wheat Improvement program in its entirety (including breeding, pathology, genomics, cytogenetics) is internationally recognized for its productivity and leadership.
- K-State was awarded a “Targeted Excellence” program for Sorghum improvement.
- The canola program is a good example of pragmatism in cross-state collaboration.
- Strong variety testing program.

Soil Science

Stakeholders consider K-State Agronomy Department soil science expertise to be an asset in terms of nutrient planning for Kansas. The soil testing laboratory is a tremendous asset to Kansas and agriculture in general. Long-term studies such as the N and P research studies in western Kansas, though not maintained by the K-State Agronomy Department, represent a considerable asset. In addition, opportunities exist to develop a training and education center at the Agronomy Learning Farm.

Strengths:
- Efforts to update and even expand the capabilities of the soil testing laboratory are to be commended (water quality testing).
- This facility is a tremendous asset to Kansas and agriculture in general through the experiences gained by undergraduate and graduate students.
- NRCS complimented the Department in assisting with model testing for hydrologic processes such as with the WEPP model and CEAP evaluation. Likewise, NRCS was pleased with the willingness to help develop calibration functions for the non-destructive determination of soil organic matter content using laser induced spectroscopy. Additional opportunities exist for graduate training and potential NRCS employment.

Promotions / Position Changes

Scott Staggenborg, Cropping Systems, was promoted from Associate Professor to Professor in July 2008. He joined the department in 1995 as Assistant Professor, starting as the Northeast Area Crops and Soils Specialist.

Curtis Thompson, Professor, moved to Manhattan from his position as Southwest Area Crops and Soils Specialist to assume the position of Weed Management Specialist in April 2008, after the retirement of Dave Regehr.

Agronomy Department Experimental Fields

Agronomy Experimental Fields have an important role in the success and presence of the department throughout the state.

Strengths:
- The Agronomy Experiment Fields function both as scientific sites and as positive landmarks for stakeholder interaction.
- As stakeholder interaction sites, they create visibility and support for K-State in local communities.
- As scientific sites, the experimental fields provide access to specific environments relevant to agronomy research needs for Kansas, environments not otherwise represented among the Agricultural Experiment Station sites.
- Permanent Experiment Field sites allow and encourage research requiring special treatments or longer-term stability. Importantly, this includes graduate student research.
New Faculty

Kevin Donnelly joins the department in 2008 as Professor of Crop Science, assuming the position held by Gerry Posler until his retirement. Kevin served K-State most recently as Assistant Dean, Academic Programs, in the College of Agriculture. Prior to coming to Kansas State University, Kevin was a faculty member in Plant and Soil Sciences at Oklahoma State University from 1982-1998.

Dorivar Ruiz Diaz is Assistant Professor, Nutrient Management Specialist. He joined the department in 2008. Raised on a farm in his native Paraguay, Dorivar was most recently a Post Doctoral Research Associate at Iowa State University, where his work focused on agronomic and environmental issues associated with poultry manure management. His interest is in soil and plant nutrient management.

Kevin Price joins the department in 2008 as Professor, Remote Sensing. Prior to joining the department, Kevin was professor of Geography at the University of Kansas, where he led efforts to develop a national vegetation monitoring program called the GreenReport. His research interests include biogeography, landscape ecology, remote sensing, geographic information systems, and resource management.

Doug Shoup is Assistant Professor, Southeast Area Crops and Soils Specialist. Shoup grew up on a diversified farm near Lyndon in Osage County, and holds B.S., M.S., and Ph.D. degrees from K-State. His doctorate is in weed science and he also worked with soybeans in Monsanto’s biotech pipeline. Doug assumes the position formerly held by Gary Kilgore, professor emeritus.

Tesfaye Tesse is Assistant Professor, Sorghum Breeding. He joined the department in 2008. He received his Ph.D. in Plant Breeding and Genetics from K-State in 2002 under Mitch Tuinstra, who was the sorghum breeder at K-State until 2007. Tesfaye was most recently leader of the Ethiopian National Sorghum Research Program.

Ganga Hettiarachchi is Assistant Professor, Soil and Environmental Chemistry. She joined the department in January 2008. Prior to joining the department, Ganga was a Research Scientist in soil and environmental chemistry with the Commonwealth Scientific and Industrial Research Organisation (CSIRO) in Australia. Her research will involve the biogeochemistry of nutrient and contaminant elements in the soil.
Gerry L. Posler

Thirty-four years of doing what you love — teaching, advising students, and furthering research — can slip away before you know it, according to Dr. Gerry L. Posler, professor of Crop Science and former Agronomy department head from 1990-98. He retired August 9, 2008.

Posler was raised on a farm near Cainsville, Missouri. After high school he received his B.S. (cum laude) at the University of Missouri in 1964 soon after marrying Shirley, his hometown sweetheart, in 1963. But even before Posler graduated he knew what he wanted to do. “I wanted to be a high school Vo-Ag teacher,” he says. Then he was offered an assistantship and the opportunity to earn his M.S. which was too good to turn down. In 1966 he received his M.S. in Agronomy from his alma mater and in 1969 he earned his Ph.D. from Iowa State University. At last he accepted a position with Western Illinois University (WIU) to teach.

Five years later he joined the Kansas State University Agronomy faculty. “It was a great move,” Posler says. “Manhattan is our home now. Coming to K-State allowed me to focus my teaching in Crop Science and Forages and for research to become a larger component in my work.”

He taught courses in Crop Science, Plant Science, Forage Management and Utilization, Crop Diseases, World Crops, Crop Breeding, Crop Growth and Development, Grain Grading, and Crop and Weed Identification.

“Every semester, every class was new. Every class was different,” Posler says. “It was always a fresh start. The students sparked my enthusiasm.”

In addition to teaching, he advised student groups, including many years as “permanent advisor” for the Wheat State Agronomy Club, Plant Science Club, and the Agriculture Council. He actively participated as member or chair of many departmental, college, and university committees, including Faculty Senate at WIU and K-State. He also coached the K-State Collegiate Crops and NACTA Crops Teams. Fourteen of his Collegiate and NACTA Crops Teams were National Champions during 1999-2007.

He received nearly every teaching award available from K-State, the American Society of Agronomy (ASA), the Crop Science Society of America (CSSA), Gamma Sigma Delta, and the North American of Teachers and Colleges of Agriculture (NACTA). Posler is a Fellow of the ASA, CSSA, and NACTA, and he served as President of NACTA.

His research activities included management and quality of cool-season grasses, legumes, summer annual and small grain forages, and planning forage systems for beef cattle. He also received USDA-DOE grants to evaluate sweet sorghum as a potential alcohol fuel feedstock.

He found student advising a gratifying part of his work. “Students come to you because they value your input,” Posler says. “An advisor listens and asks questions. The students usually figure out the answer themselves. The reward is seeing their success.”

He is also proud that several of his graduate advisees are now award-winning teachers.

After retirement Posler plans to spend more time with his wife Shirley and their family, which includes three grown sons and four grandchildren. He wants to read for fun, catch up on yard work, volunteer for church and Habitat for Humanity, and travel more.

Thinking back over his 34 years, Posler says, “You teach a lot of students and in time you go to field days and extension events and run into former students who want to say ‘Hi.’ That’s great. Then the years go by and at the meetings you run into the children of former students and they come up to say that Mom or Dad ‘says to say Hi.’ That’s when you know your efforts have made a positive difference.”

Retirement Reception for Gerry L. Posler

A “Retirement Dessert Reception” to honor Dr. Posler will be held on Friday, September 12, 2008 at 6:30-9:00 pm in the Tadtman Board Room at the K-State Alumni Center, on the northwest corner of Anderson and Denison Ave.

Please mark your calendar for this event. More details will be provided later. For more information, contact Brittany Green at 785-532-0184, or bdgreen@ksu.edu.
Dave Regehr

After more than 26 years of reaching about 2,500 agricultural professionals a year on the principles and practices of effective weed management, and after thousands of hours of field plot research, David L. Regehr, Emeritus Professor-Extension Weed Management retired March 31, 2008.

Regehr grew up on a farm in McPherson County. He always liked farming, he says, but that didn’t keep him there. He attended Bethel College, Newton, Kansas, where he met his wife Judy. They married in 1963. After several years of elementary school teaching in the Chicago area, and earning an M.S. in Botany at the University of Illinois, he and Judy spent a year in Belgium learning French, in preparation for teaching jobs in the Republic of Congo (Zaire).

Later they returned to the U.S. where Regehr earned a Ph.D. in Botany, specializing in plant ecology, also from the University of Illinois.

“There weren’t many plant ecologists in the applied weed science arena in the mid 70s,” says Regehr, “so there were opportunities to blend plant ecology with weed management.” His first “weed science” job was at the University of Delaware.

In 1981 he joined the faculty of Kansas State University, where his work emphasized training of agricultural professionals such as county Extension agricultural agents, crop advisors and consultants, agri-chemical businesses and customer applicators, and governmental agency personnel.

He supported the Extension program with field-based research. He was recognized as an outstanding educator in 1994 and as a Fellow in 2004 by the North Central Weed Science Society.

“I’ve spent some great years here,” he says of K-State Research and Extension. “The thing I always liked was traveling and visiting with farmers to learn what makes them tick. There’s an exchange of ideas and feedback. Talking with them provides a reality check. They tell us things we may not even think about when we’re developing recommendations.”

And travel he has. Regehr has exchanged ideas and shared feedback with farmers and agricultural professionals in Morocco, Moldova, and Paraguay, along with Kansas.

In 1984 he and Judy returned to the continent of Africa with their two sons under the auspices of the Mid-American International Agriculture Consortium. Their ability to speak French was just what they needed in Morocco as Regehr worked for three years in dryland farming research.

“We loved the climate and the people, and it was a great experience for the boys,” says Regehr. “While U.S. 10- and 12-year-olds were worrying about hair cuts and cool shoes, our sons John and Eric were having a multicultural experience and learning another language.”

Regehr undertook a short-term assignment in Moldova (near the Ukraine) to teach weed management and agronomic crop production in 1993. He also took two sabbatical leaves (1996 and 2004) in Paraguay, South America, to study crop and forage production systems and give weed management classes.

Regehr’s retirements plans are already well underway. He is busy with his new business, Regehr Research LLC, which takes what he likes to do — field plot research — and extends it from weeds to include research on insects, diseases, and seed treatments. While he does the plot management chores, his partner, wife Judy does the computer work.

It won’t be all work and no play. He anticipates a moose or caribou hunt with his son in Alaska one of these autumns, and he and Judy have a trip scheduled to Poland to see ancestral villages. He says he plans to stay active as a scientist.

“I don’t have a lot of hobbies besides work,” Regehr says, though he admits that he has recently had his pond stocked with blue gill, catfish, and large mouth bass. He adds, “I do hope to get in some fishing.”
Awards and Achievements

Telmo Amado, Visiting Professor, received the College of Agriculture Faculty of the Semester award.

Fred Cholick, Professor of Agronomy, Dean of Agriculture, and Director of Research and Extension, was selected as an American Society of Agronomy Fellow at the 2007 American Society of Agronomy (ASA) annual meetings in New Orleans. Cholick and 20 other society members were chosen for their professional achievements and service.

Anita Dille, Associate Professor, won the Gamma Sigma Delta award for Outstanding Advising.

Gary Kilgore, Professor Emeritus, received the Distinguished Service Award from the Kansas Farm Bureau.

Mary Beth Kirkham, Professor, won the Carl Sprengel Agronomic Research Award at the 2007 ASA annual meetings. Her research includes the physiology of drought resistance and crop uptake of heavy metals.

Mary Beth Kirkham, Professor, was named as a top reviewer for the journal Industrial Crops and Products.

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K-State Research Develops Herbicide-Tolerant Sorghum Germplasm

Grain sorghum producers in Kansas and elsewhere should eventually be able to plant two new types of herbicide-resistant grain sorghum hybrids, thanks to research at K-State.

Two lines of herbicide-resistant grain sorghum and forage sorghum germplasm were developed by Kassim Al-Khatib, Professor of Weed Science, and Mitch Tuinstra, former K-State sorghum breeder. Commercial companies will soon be able to use these new technologies in their commercial grain sorghum breeding programs. DuPont has signed an agreement to develop and market the technologies. All sorghum seed companies will be able to license the technologies from DuPont if they choose. Seed may be commercially available by 2011.

One line carries resistance to ALS herbicides, such as Steadfast, Beacon, Accent, and Ally. The other line carries resistance to ACCase (lipid synthesis inhibitor) herbicides, such as Poast, Select, Assure II, and Fusilade DX.

“To develop new options for weed control in sorghum, we decided to look at exotic sources of resistance to ALS and lipid synthesis inhibitor herbicides, and cross those sources of resistance into sorghum. This work began in 2003,” Al-Khatib said.

The two new germplasm lines are separate, but the traits could eventually be stacked.

Agronomy Professor Shares Nobel Peace Prize

Chuck Rice, Professor of Soil Microbiology, was part of the team of authors of the U.N. Intergovernmental Panel on Climate Change (IPCC), which shared the 2007 Nobel Peace Prize with former U.S. Vice President Al Gore. Along with the 2,000 other members of the IPCC panel, Rice received the Nobel Prize, marking the first time a faculty member of the Agronomy Department has done so.

“This was a tremendous responsibility and honor, and I think the Nobel Peace Prize was a surprise to all of us associated with the IPCC,” Rice said. “IPCC assessment reports are often used to establish far-reaching policies and programs on climate change. It’s critical to make sure that the reports are accurate, thorough, and completely objective.”

Rice was one of 10 scientists responsible for the chapter in the IPCC report on agriculture, including carbon sequestration and land use. He was the only scientist from the U.S. in that section.

Research over the past several years has proven that agriculture can become a key player in helping to mitigate climate change, Rice said.
Gerard Kluitenberg, Professor, won the Gamma Sigma Delta award for Outstanding Research.

Nathan Nelson, Assistant Professor, was selected as the Journal of Environmental Quality Outstanding Reviewer.

Gary Pierzynski, Professor and Department Head, received the Commerce Outstanding Undergraduate Teaching Award.

Michel Ransom, Professor, was named Phi Kappa Phi Faculty Scholar.

Chuck Rice, Professor, was appointed by Gov. Kathleen Sebelius to be a member of the Kansas Energy and Environmental Policy (KEEP) Advisory Group. This Group has been established to provide recommendations to reduce greenhouse gas emissions in Kansas, as well as to examine issues related to climate change and energy in Kansas while recognizing the interest of continued growth, economic development, and energy security to the state.

Chuck Rice, Professor, won the Gamma Sigma Delta Distinguished Faculty Award.

Dan Sweeney, Professor, Southeast Agricultural Research Center, was named Fellow of the Soil Science Society of America at the 2007 annual meetings.

Paul M. White, who graduated from agronomy with a Ph.D. under the direction of Chuck Rice in 2007, was granted the Emil Tuog Soil Science Award at the 2007 American Society of Agronomy meetings. This award is given to a Ph.D. recipient based on his or her Ph.D. dissertation.

Francis (Frank) L. Barnett, Professor of Agronomy, Forage Crops, at Kansas State University from 1956 until his retirement in 1991 died November 30, 2007. He was born October 15, 1924 in St. John, New Brunswick, Canada. After high school graduation, he entered the Canadian Army and served in Western Europe. Upon his return he entered college and received a B.S. from MacDonald College of McGill University where he graduated with First Class Honors with Distinction. He was elected to the Gamma Sigma Delta Honor Society for agriculture. Later he received both his M.S. and Ph.D. degrees from Penn State University.

He began his career at Kansas State University in 1956 doing research in plant breeding. He taught Forage Crops for 23 years. He also taught Market Grading of Cereals and Crop and Seed Quality. In his quiet, unassuming manner, he organized and directed the State FFA Crops Contest. He was a long-time member of the Manhattan Area Retired Educators Association and served as president from 2000-2001.

He is survived by his sister-in-law Cleadie Barnett, two nephews, Michael and Vaughn, two nieces, Marina Airey and Lillis Zimmer, along with numerous grand nephews and nieces.

Walter A. Moore, Assistant Professor of Agronomy and Superintendent of the South Central Experiment Field from 1943 to 1980, died December 21, 2007. Born November 17, 1915 in Oberlin, Kansas, he graduated from Decatur County High School and received his B.S. in Agriculture from Kansas State University.

During his academic years, he lettered in wrestling. In addition to his 37 years at the South Central Experiment Field, he worked for the Kansas Crop Improvement Association from 1943-1991 as a field inspector.

Walt was a tireless supporter of his colleagues and a productive contributor to the South Central Experiment Field. For many years as a 4-H community leader, he judged crops and garden exhibits throughout the state. He was also a Cub Scout Leader in Kingman, a member of Oddfellows, and a member of the South Hutchinson Lion’s Club. He enjoyed the role of Sunday school teacher as a member of the Partridge Community Church.

He was preceded in death by his wife, Mary Jane. Survivors include two sons, Robert and James, and two daughters, Betty and Nancy, along with 13 grandchildren, 11 great-grandchildren, and one great-great grandchild.

The Department of Agronomy received $7.0 million in extramural funding for Fiscal year 2007, the second highest total ever.
Research on Sorghum Weed Could Help Reduce Hunger in Africa

The sorghum research team at K-State has been working to solve a serious food production problem in Africa – and the team has found a solution that could have a significant beneficial impact for many.

Striga, a parasitic weed, costs $6 billion in crop damage every year in Africa, said Kassim Al-Khatib, K-State weed physiologist. The weed has huge impacts on food production and hunger because of the crop losses it causes, he said. Kansas State University is involved in an international effort to eradicate Striga from African fields, and the results look promising.

“The flowering weed invades fields of sorghum and certain other crops. Underground, Striga parts connect to sorghum roots and feed on them. This dramatically reduces crop yield and sometimes destroys entire fields. African farmers have tried crop rotations and other simple strategies to control Striga, but nothing has worked,” said Al-Khatib.

As part of their research, Al-Khatib and Mitch Tuinstra, former sorghum breeder at K-State and now at Purdue University, began treating the seeds with an inexpensive, low-toxic herbicide.

“As the sorghum grows, the seed treatment will kill the Striga. All of these new technologies are being developed in Manhattan, and we are testing the seeds in Africa to select the right herbicide, rate, landrace, seed treatment, and other factors,” explained Al-Khatib.

The treated seed currently is being tested in Mali and Niger with successful results, he added. “It has stirred up excitement because of its implications for reducing hunger in these areas. Testing will soon expand to other countries,” he said.

Foundation Seed Program

The past two growing seasons have been a challenge for the Foundation Seed program, but sufficient seed has been produced. In 2008, some Foundation Seed fields were hit hard by hail damage, said Vernon Schaffer, manager of Kansas Foundation Seed. There were even bigger problems in 2007. The early April freezes in 2007 affected almost every aspect of wheat variety performance in central and eastern Kansas, from breeders’ plots and experimental line increases to farmers’ production fields.

Despite two difficult years in a row, Foundation Seed remains in good shape.

“In a typical year, Foundation Seed will plant about 120 acres of a variety that has good demand. We use a seeding rate of 40 pounds per acre, and plan on producing about 3,500 to 5,000 bushels per year of such varieties. The exact amount we plan to plant and produce of a given variety in any one year depends on the amount of carryover seed we have of that variety and the demand we anticipate,” Schaffer said.

Most of the Foundation Seed of hard red winter wheat varieties is produced at one of four locations in the state: Manhattan, Hutchinson, Hesston, and Ottawa. In 2008, the Hutchinson location was damaged by hail. In 2007, all four of these locations were hurt by freeze damage. Three of the sites had severe freeze injury. The Foundation seed fields in Manhattan had the best yields and quality, and saved the seed supply in some cases.

“It is unusual for central and eastern Kansas to have such a widespread wheat crop failure as we saw in 2007, which is why we concentrate most our seed production fields in those areas,” he said.

Foundation seed of hard white wheat varieties is produced at Hays, which also had some freeze and hail damage in 2007. Kansas Foundation Seed is currently maintaining Foundation wheat seed of 2137, 2145, Danby, Endurance, Fuller, Jagger, Karl 92, Overley, RonL, various experimental wheat lines, and soybean varieties.
Wheat Breeding Program Benefits from Molecular Genetics Center

Wheat breeder Allan Fritz has plenty of challenges in developing new varieties for Kansas wheat producers. Producers and end-users have a large list of traits they would like to see in new wheat varieties: high yield, resistance to several diseases, Hessian fly resistance, straw strength, drought tolerance, milling and baking quality, and much more.

“Until recently, the only way to find and incorporate these kinds of traits into new varieties has been to simply make as many crosses as possible in a single year, screen all the resulting lines in the field or greenhouse for all the traits desired, and see what happens,” Fritz said.

However, it is impossible to screen all these traits in one single plant with conventional breeding methods because disease screening is usually a destructive process. With recent advances in molecular genetics and genomics technologies now available, the process is feasible and becoming a routine to screen hundreds of genes using one small piece of leaf without damage to the plant.

“At K-State, we’re fortunate to have Dr. Guihua Bai and his colleagues with the USDA Small Grain Genotyping Center (SGGC) in Throckmorton Hall. This team of scientists is doing great work with molecular markers for many of the important traits that we and other breeding programs in the Central Plains need for new wheat varieties,” Fritz said.

Just what does molecular genetics and genomics involve, and how is this technology used in a wheat breeding program? Essentially, molecular genetics and genomics involves identifying specific segments of DNA, called molecular markers, associated with a given trait (such as leaf rust resistance), and using those markers to help breeders trace the traits they want in new crosses.

In other words, using molecular markers, breeders can “see” if one of their crosses has disease resistance genes based on a laboratory screening. The breeder no longer has to plant all the crosses in the field and wait for natural infections of diseases to select the lines with the resistance genes. This process can take a full growing season, or even several seasons if natural infection is not adequate. The lab analysis only takes days.

Using molecular markers can also shorten breeding cycles and improve the accuracy of trait selection in early-generation crosses and early growth stage. Marker-assisted selection can spontaneously select hundreds of the traits in early seedling stage to determine the presence of the desired genotypes. Breeders can then focus on selected plants to select for other traits in the same season.

“We work closely with wheat breeding programs in this region to develop new molecular markers for agronomically important traits and collaborate with breeding programs to design and conduct more extensive marker-assisted breeding projects that can lead to quick release of new cultivars or new germplasm with regional impact,” said Bai, USDA molecular geneticist and adjunct professor of agronomy at K-State.

In wheat, molecular markers have been identified that are associated with about 40 economically important traits, such as leaf rust resistance. They are routinely used in the SGGC to screen wheat breeding materials from hard winter wheat breeding programs in the Great Plains.

The USDA Small Grain Genotyping Center at K-State not only screens crosses to detect known molecular markers for breeding programs, it also does research on finding new molecular markers for desired traits. To date, The Center has developed new markers for aluminum tolerance, preharvest sprouting resistance, stripe rust resistance, and head scab resistance, and is exploring potential application of single nucleotide polymorphism, a new generation marker system, in wheat breeding.

The USDA Small Grain Genotyping Center located at K-State is one of only four such USDA Centers in the country.
New Web-Based Smoke Management System Being Tested

Every spring, smoke from prescribed burns on the Flint Hills has the potential to affect air quality in eastern Kansas and surrounding states. At K-State, a new method of smoke modeling is being researched by a team led by Jay Ham, Professor of Agronomy. This new method could help manage the extent and impact of smoke plumes from the Flint Hills.

BlueSkyRAINS, a web-based information system that has been used in the Pacific Northwest to monitor smoke from prescribed forest burns, is being tweaked to work for burns on the prairie by Ham, who specializes in environmental physics and micrometeorology, along with Clenton Owensby and Walt Fick, Professors of Agronomy; Pat Coyne, KSU Ag Research Center-Hays; Doug Goodin, Professor of Geography; and Bill Hargrove, Director of the Kansas Center for Agricultural Resources and the Environment.

There are two components to BlueSkyRAINS, Ham explained.

“BlueSky” is a computer model developed by the USDA Forest Service to predict the impacts of smoke from prescribed, wildland, and agricultural fires. “RAINS” (Rapid Access Information System) is a Geographic Information System product of the U.S. Environmental Protection Agency (EPA). The Forest Service merged the two products into BlueSkyRAINS.

This unique computer modeling system has the potential to be a valuable aid to rangeland managers in Kansas, where the use of controlled fire is critical.

“Prescribed burns in the Flint Hills are important for the prairie ecosystem and the Kansas cattle industry,” said Ham. “Spring burning suppresses invasive woody shrubs and reduces mulch and residue, increasing the productivity of the grassland. As more grass grows, cattle weight gains increase, which helps the producer and the economy.”

Prescribed burning does have a downside — smoke. “In the spring of 2003, all Flint Hills producers burned their land at the same time due to weather conditions. A large smoke plume was created; the plume traveled over Kansas City and into Missouri. Results were seen even as far away as Tennessee and northern Iowa. The smoke decreased urban air quality, causing an ozone spike in Kansas City,” said Ham.

By using BlueSkyRAINS, land managers, regulators, and the general public can view the potential smoke impacts from regional burning activities, such as prescribed burns on the Flint Hills, before the fires occur. With input such as the location, time of day, and acreage to be burned, the system then animates the projected smoke plume. It can determine downwind smoke concentrations, potential public health alerts, visibility, if roads may be affected, and other effects, explained Ham.

“These predictions help managers make the best decision about when to burn,” he said.

K-State is the first organization to expand this technology beyond its use in forestry. “It’s an expensive undertaking, but the goal is for anyone to be able to log onto the Internet and see if it is safe to burn. If the technology can be successfully implemented, the EPA may not have to step in to regulate burns, and ranchers could rest assured that their burns won’t create liability issues like traffic accidents and wildfires,” explained Ham.

Ham and a group of fellow researchers at K-State have just received a three-year grant to research the potential of BlueSkyRAINS in a prairie ecosystem.

“Burning prairie is very different than burning forests. Also, Kansas topography and climate are different than in the Pacific Northwest, so the model needs to be fined-tuned to make the readings accurate and useful. The technology will hopefully be ready for use by those in the Flint Hills at the end of the three years,” concluded Ham.

For more information on BlueSkyRAINS, see:
http://www.blueskyrains.org
Grain sorghum is an important crop not only to farmers in Kansas, but to farmers in many countries in Africa. Some of the production challenges are the same, but many challenges are different or more severe in West African countries, said Vara Prasad, Assistant Professor of Agronomy at K-State. West African farmers battle against drought, soil infertility and parasitic weeds.

In October 2007, Prasad and Scott Staggenborg, Professor of Agronomy, traveled to several countries in West Africa to kick off the beginning of a four-year program funded by INTSORMIL, the International Sorghum and Millet Improvement Program, a USAID program. The purpose of INTSORMIL is to find ways to improve production practices in those countries. West African farmers face serious problems with their sorghum and millet production because of the quality of the land, the environment, and because of a localized and volatile market, the agronomists explained.

“We traveled to Mali, Niger, Ghana, and Burkina Faso. Everything in those countries is done by hand; sowing, weeding, fertilizing and harvesting,” said Prasad. He and Staggenborg will be working to increase the water-use efficiency of the farmers’ cropping practices to better cope with drought conditions.

Prasad and Staggenborg observed the “zai” systems that many farmers are using to conserve water. “They dig numerous shallow holes in the ground, wait for rain, then plant one seed in each water-filled hole,” said Prasad.

A new “half-moon system” is being tried on an experimental basis in some farmer fields. “In this system, a series of crescent-shaped mini-terraces is constructed on a sloped field to create a series of small catch-basins to collect water as it flows down the field. The seeds are planted in these half-moon shaped basins. A form of terracing to complement this half-moon system is also being researched, and we are trying to extend both of these technologies to a number of villages,” said Prasad.

Fertilizer is not as readily available in Africa as it is in the U.S., mostly for financial reasons, added Staggenborg. “To make the infertile soil more suitable for crops, farmers can purchase smaller, more affordable bags of fertilizer to divvy up among the plants. Farmers usually have only one or two acres,” he said.

Those who own goats and cattle have the option of mixing the fertilizer with organic manure so they can apply more over a larger area. There is also potential for composting, said Prasad, though it is not yet being practiced.

Leaving crop residues on the fields would help put nutrients back into the soil, but residues are often used for other purposes, added Prasad. “People use the sorghum and millet grain for their own consumption, but the residues are gathered or sold for livestock fodder. Because of its financial value, it is difficult for farmers to leave the residue on their fields. Also, any abandoned residues might be stolen.”

Another issue they are working to improve is the problem of Striga, a parasitic weed that saps the crops’ resources during stressed conditions. Potential solutions for this are crop rotations and herbicide-treated seeds, which are being developed at K-State, said Prasad.

The West African market for grains is extremely sensitive. In the U.S., demand may shift from one crop to another as prices go up and down, but in Africa, a price increase directly affects a large area because of their lack of efficient transportation, said Staggenborg.

Prasad and Staggenborg visited universities in several countries, and will be working with the faculty to help improve the curriculum and to get information to more people. West African farmers are eager to learn; getting the knowledge to them will be the key.
Research and Extension Programs

WRAPS Program Update

Kansas WRAPS (Watershed Restoration and Protection Strategy) projects are moving into more watersheds, said Environmental Quality Specialist Dan Devlin. Several projects are currently being developed, and Kansas State University will likely be involved in a number of them.

Two of the watersheds that K-State is currently working with are the Little Arkansas River watershed and the Lower Smoky Hill watershed. In the Little Arkansas River watershed, which is located in southcentral Kansas, most of the land is cropland. K-State is working to improve pesticide runoff (primarily atrazine), and noticeable success has been seen in the past two years.

“Soon, we will be attempting to reduce sediment loading in the surface waters in the watershed. This will require meeting with stakeholders and encouraging local farmers to implement best management practices (BMPs) to reduce runoff,” Devlin said.

There are two BMP demonstration sites along the river that show the positive results of BMPs. A surface monitoring system has been installed in the Little Arkansas River watershed to evaluate water quality improvements.

The Lower Smoky River, which runs from Kanopolis to Solomon, is another area K-State is working with, Devlin said. “This WRAPS project is still in the development process. We hope to complete the WRAPS implementation plan in 2008. Also, we are developing a riparian restoration demonstration that should be ready this year,” he said.

WRAPS is a planning process to identify all the water quality protection and restoration needs of a watershed. WRAPS serves to integrate TMDL (Total Maximum Daily Load) implementation, water quality restoration, water quality protection, source water protection, and wellhead protection activities required under the Safe Drinking Water Act and habitat restoration and protection activities.

WRAPS was unveiled in 2005 as the new framework for watershed planning and management in Kansas. WRAPS is a locally-driven process of engaging watershed residents to determine the condition of water and other natural resources; identify sources impacting these resources; establish restoration and protection goals; identify restoration and protection measures (BMPs and other actions); and to develop an action plan to implement selected measures.

The overall goals are to restore and protect the health of water and other natural resources in a watershed; better coordinate local, state, and federal restoration and protection efforts; and to more efficiently target technical and financial assistance programs within watersheds. Many K-State Research and Extension faculty, staff, and county agents are currently involved in supporting WRAPS projects around the state. Other agencies cooperating in WRAPS projects include KDHE, Kansas Water Office, State Conservation Commission, USDA-NRCS, and others.

Dan Devlin

New Soil Testing Lab Web Site

The K-State Soil Testing Lab has created a new and improved Web site. A change in computer systems allowed the lab to add new information to the site while making it more user-friendly and informative. The new site went online the beginning of April, 2008. Web Manager Marsha Landis and her assistant Patricia Blocksome helped with design and development. The goal of the new design was to make the site easier to use.

The site now is organized to guide different customers, such as farmers and agronomists, homeowners and researchers, to their specific needs. Each type of customer now has a different pathway to submit a soil test or leaf analysis.

The site is designed to be a source of helpful information for anyone with interests or concerns related to soil fertility and nutrient management. A publications section has been added to help answer questions about fertilizer recommendations, fertilizer applications, nutrient deficiency symptoms, nutrient management, and other subjects. This section will grow with time.

In the future, information about research projects will also be accessible from the Soil Testing Lab home page (http://www.agronomy.ksu.edu/SoilTesting). The new site will hopefully be able to answer even more customers’ questions.

The easiest way to get to the new Soil Testing Lab site is to start from the Agronomy home page (http://www.agronomy.k-state.edu); click Services in the left menu, then Soil Testing Lab.
For the past five years, Keith Janssen, Associate Professor at the East Central Experiment Field, has conducted a series of test plots throughout eastern Kansas comparing no-till, strip-till, and conventional tillage. Most of the research was on corn, but one of the sites tested grain sorghum.

“We began this project in 2004,” Janssen said. “Monsanto had a strip-till applicator and wanted to provide it to someone who would use it to evaluate strip-tillage, so we took it on and began conducting tillage comparison studies.

“We had to convert the strip-till machine from a 6-row to a 4-row unit so that we could transport it around the state. We have had plots from north of Topeka to south of Wellington, and have had to haul all of our equipment with us on flatbed trailers,” he said.

Over the years, Janssen has had sites for this research in Allen, Crawford, Franklin, Montgomery, Shawnee, and Sumner counties. He has compared the three tillage systems on many soil types, from upland to river bottom.

Some years, early growth has been slightly slower in the no-till plots, he said. But there has been no significant difference in yields overall between any of the tillage systems when averaged over all years and locations.

“In one very dry year, the strip-till and no-till systems performed better for corn than conventional tillage in Crawford County. But other than that, there have been no major differences,” he said.

Fertilizer application methods are very important when comparing tillage systems. In the strip-till plots, the fertilizer was applied in the strip-till zone five inches below the row both in the fall and as spring applications. Timing made no difference in yields. In the no-till plots, the fertilizer was banded approximately three inches to the side and three inches below the seed row at planting time. In the conventional-till plots, the fertilizer was in most cases knifed in five inches deep on 30-inch centers and then the soil was worked with tillage.

One of the keys to performance of no-till in eastern Kansas is sub-surface application of fertilizer, Janssen said. If fertilizer is surface-applied in no-till, then volatilization of N, tie-up of nutrients by the crop residue, and losses in surface water runoff can occur. In this research, the no-till plots yielded as well as strip-till and conventional-till in part because the fertilizer was sub-surface banded.

Janssen has presented results of this research at several producer meetings in eastern Kansas over the past few years.
The agronomy undergraduate program is constantly changing to meet students’ needs, said Mickey Ransom, Professor of Agronomy and Assistant Head for Teaching. Adjustments in curriculum and technology make change an on-going process.

Because of increases in technology, a plant science and biotechnology option was added to the program in 2003. Also, student demand for crop consulting degrees has been high, so the department combined the consulting option with the production option, changing the number of agronomy options from six to five:

1. Business and Industry (which works well with an agriculture business minor)
2. Consulting and Production
3. Plant Science and Biotechnology
4. Range Management (which fits well with an animal science and industry minor)
5. Soil and Environmental Science (which supports the natural resource and environmental science secondary major)

An Agronomy minor is available to any undergraduate major.

With these options, K-State Agronomy graduates have been in high demand.

“We have 100 percent placement for all our students,” Ransom said. This has been the case for the past seven years, with 60 percent of the graduates taking industry-related positions, 22 percent pursuing graduate school and 18 percent returning to production agriculture.

Employers need as many Agronomy graduates as they can get. “The job market would support 130 students, and we have the capacity to support those 130,” explained Dana Minihan, Agronomy Assistant Academic Coordinator.

A new course, Applications of Nutrient Management (AGRON 625), has been approved. It has been taught twice by Dave Mengel and covers topics such as the

(continued on next page)
Teaching Programs

Students broadened their perspectives on soil management during the Spring 2008 semester in a special course on tropical soil management offered by the Department of Agronomy.

Telmo Amado, Visiting Professor from Brazil, taught the special topics class to students from Africa, China, Colombia, Brazil, and the United States. The discussion-based, international atmosphere focused on soils in South America and Africa, and fertility and farm inputs used in those regions.

Amado said tropical soils are very important for producing food and biofuels on a global scale. Tropical soils also play an important role in sequestering carbon, though this has created some contrasting views about tropical soil use.

Tropical soils have very low fertility, said Amado, but are generally in good physical condition. With the right inputs and management practices, they can be just as productive as temperate soils.

“When we stop the erosion process and increase the soil organic matter, these soils are very productive,” he said. Farmers achieve this by planting cover crops and implementing no-till practices. About 50 percent of Brazilian cropland is under no-till; farmers need to develop efficient strategies like no-till to even afford to farm, Amado said.

In class, the variety of student backgrounds brought a lot of experience to the discussions, said Amado.

Habib Diop, graduate student in Agronomy, took the class to learn more about farming opportunities in his country.

“My goal is to go back to Africa to help the farmers in the tropics,” he said.

U.S. students said they took the class to broaden their perspective about soil management. Matt Becker and Cody Swinehart, both seniors in Agronomy, said they wanted to apply what they learned about tropical soil management to management practice in the states.

“I found here that students are very dedicated,” Amado said. It’s been a wonderful experience, because the strong student interest has made his job easier, he said.

As far as consistency goes, clubs and scholarships continue to be a large part of the undergraduate program. The department awards nearly $100,000 in scholarships every year, and the Wheat State Agronomy Club, Crops Judging Team, Soil Judging Team, and Weed Science Judging Team have all been successful in their endeavors.

Amado was also impressed with the technology here, such as K-State Online. He said it was nice to be able to put notes online so that students could prepare for class.

He would like to continue the course over the Internet after he returns to Brazil’s Santa Maria University in the fall.

Amado worked as a crop consultant in Africa for five years, communicating conservation agriculture. Amado was attracted to K-State when Chuck Rice, Professor of Agronomy, traveled to South America to discuss carbon sequestration. Amado came to Kansas on a sabbatical, and he will be researching carbon sequestration with Rice this summer by comparing sequestration in temperate and tropical soils.

Students broadened their perspectives on soil management during the Spring 2008 semester in a special course on tropical soil management offered by the Department of Agronomy.

Another special topics class, Tropical Soil Management, was taught during spring 2008 by Telmo Amado, a visiting professor from Brazil. There has been discussion about continuing the class in a shared distance learning format after Amado returns to Brazil, Ransom said.

“We have some classes that are taught in a distance format,” Ransom said. Even large classes, though, are taught in person.

This summer, the department will be converting one of its conference rooms into a teleconferencing classroom/seminar room.

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Students Win National Honors

Several K-State Agronomy students received national honors at the 2007 American Society of Agronomy (ASA) annual meetings held in November in New Orleans, Louisiana.

Lauren Smith, Lenexa, M.S. student in genetics, received the Frank D. Keim Graduate Fellowship. This award is based on academic excellence, leadership experience and future plans involving agronomy. Funding for the fellowship comes from the Agronomic Science Foundation.

Michael Popelka, Munden, senior in the plant science option, was selected by the Crop Science Society of America as one of the 15 Golden Opportunity Scholars. These scholars participate in a year-long mentoring program and receive funds to attend the annual meetings.

K-State’s Wheat State Agronomy Club and its members also were honored at the meetings (see box below).

In addition to those students, other WSAC members attending the ASA annual meetings were Angela Tran, junior, Prairie Village; Josh Andres, sophomore, Newton; Matt Pachta, senior, Linn; Paul Hartley, senior, Emporia; Holly Weber, senior, Milan; and Leah Ferdinand, senior, Reading.

The Wheat State Agronomy Club traveled to New Orleans, LA on November 2-7, 2007 to participate in the Annual American Society of Agronomy (ASA) meetings. The students are members of the Students of Agronomy, Soils, and Environmental Sciences.

2007 ASA Accomplishments

President’s Cup Year in Review
3rd place out of 10 teams
Presented by Andrew McGowan, Jr., Prairie Village

Quiz Bowl – 2nd Place Team
Rawly Kaufman, Sr., Lucas
Nick Ward, Sr., Wamego
Scott Dooley, Sr., Jewell
Matt Becker, Sr., Centralia

Multi-University Quiz Bowl Team
1st Place Team Member
Cody Swinehart, Sr., Norwich

Research Symposium Poster
1st Mark Davis, Sr., Bavaria
2nd Adam Heitman, Sr., Webber

Research Symposium Oral Presentation: Participant -
Paul Hartley, Sr., Emporia

Speech Contest: Participant -
Angela Tran, So., Prairie Village

Club Poster Contest Presented by:
Matthew Pachta, Sr., Linn
Matt Wyckoff, So., Gardner

2007/08 ASA National Officers and Committee Chairs

National Officers:
2007-08 Recording Secretary: Jenae Skelton, So., Larned
2006-07 Corresponding Secretary: Holly Weber, Sr., Milan

National Committee Chairs
Crops Judging – Matt Wyckoff, So., Gardner
Parliamentarian – Kevin Hecht, So., Farmington, NM
Soil Judging – Kelsey McGie, So., Iola
Speech Contest – Michael Macek, Jr., Wilson
Golden Opportunity Scholar – Michael Popelka, Sr., Munden
Interns – Clif Steffen, So., Conway Springs and Charlie Parsons, Sr., Ellsworth
Audio/Visual Presentation – Leah Ferdinand, Sr., Reading
Weed Science Teams Excel at Diagnostic Skills

The North Central Weed Science Society sponsors the Collegiate Weed Science contest, an opportunity for undergraduate and graduate students to test their diagnostic skills in four events: weed identification, written and hands-on field sprayer calibration problems, diagnosis of herbicide injury symptoms, and solving problems in the field. The contest is held each year in July and is a great networking opportunity with representatives from the agricultural industry as well as other universities from around the Midwest.

On July 18-19, 2007, the team traveled to Richland, Iowa, where the contest was hosted by Bennett Agricultural Research Corp. The Graduate Team placed third overall, First in Team - Field Sprayer Calibration, and First Individual Graduate (Kellan Kershner) in the Problem Solving event.

Members of the 2007 Graduate Team were Kellan Kershner, Analiza (Haydee) Ramirez, Mary Joi Abit, and Ella Ruf. Participating as a graduate individual was Meshack Ndou. The team is coached by Anita Dille and Dallas Peterson.

The Department of Agronomy at K-State hosted the contest in 2005 and has participated yearly in the contest since early 1990’s. In 2003, K-State’s Graduate Team placed first, with Individual Graduate placing first overall and first in Weed Identification. In 2006, the Graduate Team placed third and Individual Graduate (Michael Duff) placed third overall.

Agronomy Students Recognized

Matt Becker, Centralia, was selected as the March Ag Student of the Month.

Lillian Brzostowski, Paul Hartley and Adam Heitman were inducted as members of the Gamma Sigma Delta Honor Society of Agriculture for Fall 2007.

Meghan Buckley, Manhattan, graduate teaching assistant, won a national graduate student teaching award from the North American Colleges and Teachers of Agriculture.

Mark Davis, Bavaria, won first in the Research Poster Contest for the Agronomy, Soils and Environmental Sciences (SASES) Student Awards.

Scott Dooley, Jewell, was selected as the November Ag Student of the Month.

Scott Dooley received the Wheat State Agronomy Club Advisors Selection Award.

Leah Ferdinand, Reading, received the American Society of Agronomy Outstanding Senior Award.

Paul Hartley, Emporia, was a Fall Initiate 2007 in the Phi Kappa Phi University Honor Society.

Kevin Hecht, Farmington, NM, was named Parliamentarian for Agronomy, Soils and Environmental Sciences (SASES).

Adam Heitman, Webber, won second in the Year-In-Review Contest for the Agronomy, Soils and Environmental Sciences (SASES) Student Awards.

Adam Heitman was a Spring Initiate in the Phi Kappa Phi University Honor Society.

Michael Macek, Wilson, was named Speech Contest Chair for Agronomy, Soils and Environmental Sciences (SASES).

Kelsey McGie, Iola, was named Soils Contest Chair for Agronomy, Soils and Environmental Sciences (SASES).

Andrew McGowan, Prairie Village, received a Junior Honor Certificate from Gamma Sigma Delta, along with a First Year Performance Award.

Andrew McGowan was a Sophomore Scholar for the Phi Kappa Phi University Honor Society.

Blake McLemore, Colby, was part of the Alpha Zeta Honor Society from Fall 2007-Spring 2008.

Jenae Skelton, Larned, was named National Recording Secretary for Agronomy, Soils and Environmental Sciences (SASES). Jenae was also selected as the 2008-09 Miss Rodeo K-State.

Matt Wyckoff, Gardner, was named Crops Contest Chair for Agronomy, Soils and Environmental Sciences (SASES).
Soil Judging Team Takes Regional, National Awards

K-State’s Soil Judging Team won 1st place in the “Overall Team” and 2nd place in the “Group Judging” categories at the 2007 Region 5 Soil Judging Contest hosted by Iowa State University held in October. Forty students from seven universities competed.

Andrew McGowan, junior in Agronomy, Prairie Village, was the 3rd high individual of all students competing. Adam Heitman, senior in Agronomy, Webber, placed 4th high individual. Paul Hartley, senior in Agronomy, Emporia, placed 6th high individual and Leah Ferdinand, senior in Agronomy, Reading, placed 8th high individual.

Other members of the K-State Soil Judging Team were Ryan Cyr, senior in Agronomy, Miltonvale; Kelsey McGie, sophomore in Milling Science Management, Iola; Andy Newkirk, freshman in Agronomy, Manhattan; and Angela Tran, junior in Agronomy, Prairie Village. Coach for the team is Mickey Ransom, professor of Agronomy. The assistant coach is Scott Dooley, senior in Agronomy, Jewell.

Members of the 2007/08 K-State Soil Judging Team relax at the soil judging contest. From left to right: Ryan Cyr, Adam Heitman, Paul Hartley, Andy Newkirk, Leah Ferdinand, Kelsey McGie, Andrew McGowan, and Angela Tran. Not pictured are team coaches Mickey Ransom and Scott Dooley.

K-State’s Soil Judging Team won first place overall at the 2008 National Soil Judging Contest hosted by the University of Rhode Island in April 2008. This marks the first time the K-State Soil Judging Team has taken first place overall in the national contest. Twenty-one teams competed.

Individual team members also succeeded in the high individuals competition: Leah Ferdinand, senior in Agronomy from Reading, won second place; Paul Hartley, senior in Agronomy from Emporia, won sixth place; Ryan Cyr, senior in Agronomy from Miltonvale, received 14th place; and Adam Heitman, senior in Agronomy from Webber, received 20th.

Other competing team members include Kelsey McGie, sophomore in Milling Science and Management from Iola; Andrew McGowan, junior in Agronomy from Prairie Village; Andy Newkirk, freshman in Agronomy from Manhattan; and Angela Tran, junior in Agronomy from Prairie Village.

Mickey Ransom is the team coach, assisted by Scott Dooley, senior in Agronomy from Jewell.

The Soil Judging Team won second place overall last year and has qualified for the national competition 13 out of the last 14 years. They have also won the regional contest three out of the last five years.

The contests are an activity of the American Society of Agronomy and the Soil Science Society of America.
Student Activities

2008 NACTA Crops Team
The K-State Crops Team won third place overall at the North American Colleges and Teachers of Agriculture (NACTA) Crops Contest April 18th at Tarleton State University in Stephenville, TX. The team also placed second in Identification and third in the Lab Practical phases of the contest.

Fifteen teams from two- and four-year colleges and universities participated in the competition.

The competition tested participants’ skills in four areas. The agronomic quiz evaluated knowledge of crop production and management, crop physiology and breeding, soils and tillage, soil fertility, crop harvesting and storage, weeds, insects, and diseases. During the laboratory practical, competitors identified insects, diseases, weeds, fertilizers, stored grains, forage and processed crop products, and field and laboratory equipment. In addition, the contest included crop and weed plant and seed identification, and agronomic calculations and equipment calibration.

Participating students, listed alphabetically, were:
Alex Bolack, junior in Agronomy, Burden, placed fifth overall. He was third in lab practical and eighth in identification.
Josh Andres, junior in Agronomy, Newton, placed sixth in identification.
Kevin Hecht, junior in Agronomy, Farmington, NM, was an alternate.
Matt Pachta, senior in Agronomy, Linn, was tenth in lab practical.
Josh Patterson, sophomore in Agronomy, Valley Center, was an alternate and had the highest identification score.
Jason Rugan, junior in Horticulture, Elginwood, was an alternate.
Matt Wyckoff, junior in Agronomy, Gardner, was a team member.
Gerry Posler, Professor of Agronomy, served as coach for the team.

2007 Collegiate Crops Team
The K-State Collegiate Crops Team again claimed the title as national champion, a feat that K-State teams have accomplished in seven of the past nine years.

The team won both the Kansas City Board of Trade and Chicago Collegiate Crops contests to win the national championship. K-State placed first in plant and seed identification and grain grading, and second in seed analysis at both Kansas City and Chicago.

Cody Duitsman, junior in Agronomy, Washington, was the high individual overall at Kansas City and he placed first in grain grading, third in seed analysis, and sixth in identification. At Chicago, he was third high individual overall.

Clint Patry, senior in Agronomy, Colwich, was high individual overall at Chicago, placing first in grain grading and third in seed analysis and identification. At Kansas City, he placed fourth overall.

Mike Popelka, senior in Agronomy, Munden, placed third overall at Kansas City and fourth overall at Chicago. He also Placed second in grain grading, third in identification, and sixth in seed analysis. At Chicago he placed first in identification with a score of 596.8 out of 600 points, fourth overall, seventh in grain grading, and eight in seed analysis.
Scholarships Awarded

• **Mary Lucille and Walter Abmeyer Scholarship**
  Matt Becker, Centralia
  Denton Bailey, Norcatur
  Kate Glanville, Oskaloosa
  Josh Hladik, Valparaiso, NE
  Blake McLemore, Colby

• **Ernest L. and Lou R. Adams Scholarship**
  Andrew McGowan, Prairie Village
  Paul Hartley, Emporia
  David Deforest, Florence
  Allen Kampschnieder, Howells, NE
  Nathan Keep, Beatrice, NE

• **Dewey and Nelta Axtell Scholarship**
  Nick Guetterman, Bucyrus

• **Henry M. Beachell Scholarship**
  Scott Dooley, Jewell

• **Genevive L. and Frank G. Bieberly Scholarship**
  Scott Dooley, Jewell

• **John Bunck Memorial Scholarship**
  Andrew McGowan, Prairie Village

• **Lowell A. Burchett Memorial Scholarship**
  Cody Duitsman, Washington

• **Gordon Byler Memorial Scholarship**
  Paul Hartley, Emporia

• **Leland E. Call Memorial Scholarship**
  Ethan Noll, Hiawatha

• **Carls Family Scholarship**
  Alan Vogel, Marion
  Leah Ferdinand, Reading
  Nick Novak, Modoc
  Ethan Noll, Hiawatha

• **J.D. Carroll Memorial Scholarship**
  Ryan Cyr, Miltonvale
  Paul Hartley, Emporia

• **Alfred L. Chapp Scholarship**
  Cody Swinehart, Norwich

• **A.E. and Katherine Cook Scholarship**
  Alan Vogel, Marion

• **Walter E. Gilmore Scholarship**
  Nick Guetterman, Bucyrus
  Scott Dooley, Jewell
  Jason Grams, Manhattan
  Bret Rooney, Satanta

• **Albert P. Haeberle Scholarship**
  Lillian Brzostowski, Severn, MD

• **Kansas Crop Improvement Association Scholarship**
  Clint Patry, Colwich

• **Kansas Seed Industry Association Scholarship**
  Cody Duitsman, Washington

• **Todd A. Kintigh Memorial Scholarship**
  Cody Duitsman, Washington

• **David Koch Agriculture Scholarship**
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• **Hilmer H. Laude Scholarship**
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• **Bruce Maunder National Grain Sorghum Producers Scholarship**
  Nick Novak, Modoc

• **George E. Mickelson Scholarship**
  Clint Patry, Colwich
  Ethan Noll, Hiawatha
  Matt Pachta, Linn
  Nick Novak, Modoc
  Tyler Rosener, Fairbury, NE

• **George E. Mickelson Scholarship**
  Kate Glanville, Oskaloosa
  Denton Bailey, Norcatur
  Lillian Brzostowski, Severn, MD
  Kerri Neugebauer, Grandview, MO
  Tyler Rosener, Fairbury, NE
  Aaron Widmar, Franklin
  Jason Unruh, Peabody
  Shane Blaes, Cherryvale
  Bret Rooney, Satanta

• **Lewis G. Mickelson Scholarship**
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  Denton Bailey, Norcatur
  Lillian Brzostowski, Severn, MD
  Kerri Neugebauer, Grandview, MO
  Tyler Rosener, Fairbury, NE
  Aaron Widmar, Franklin
  Jason Unruh, Peabody
  Shane Blaes, Cherryvale
  Bret Rooney, Satanta

• **J.D. Carroll Memorial Scholarship**
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  Paul Hartley, Emporia

• **Charles W. and Lois H. Nauheim Agronomy Scholarship**
  Leah Ferdinand, Reading
  Adam Heitman, Webber
  Michael Popelka, Munden
  Jenae Skelton, Larned

• **Ivy Fuller Olds Scholarship**
  Jason Grams, Manhattan
  Andrew York, Sublette

• **George and Hila Parsons Scholarship**
  Andy Newkirk, Manhattan
  Aggie Donald, Kayenta, AZ

• **Robert K. and Barbara Petro Agronomy Scholarship**
  Darrin Seiwert, Conway Springs

• **Thomas M. Potter II Memorial Grazing Land Management Scholarship**
  Kevin Arnet, Anthony

• **Rannels (Hile) Scholarship**
  Zachary Simon, Murdock
  Kevin Arnet, Anthony
  Aggie Donald, Kayenta, AZ

• **Leslie R. Reinhardt Scholarship**
  Jenae Skelton, Larned

• **Robert F. Sloan Scholarship**
  Kyle Shroyer, Manhattan
  Andrew McGowan, Prairie Village

• **Smika Agronomy Scholarship**
  Andrew McGowan, Prairie Village

• **Wayne Tjaden Scholarship**
  Matt Becker, Centralia

• **Jake Ubel Agronomy Scholarship**
  Rawly Kaufman, Lucas

• **Brian E. Vining Memorial Scholarship**
  Rawly Kaufman, Lucas

• **Wheat State Agronomy Club**
  Nick Ward, Wamego

• **John T. Whetzel Scholarship**
  Ethan Noll, Hiawatha

• **Howard Wilkins Scholarship**
  Nick Guetterman, Bucyrus
Mr. Arthur J. (Art) Armbrust passed away August 21, 2006. He was a long-time agronomist with Sharp Bros. Seed of Healy. He generously donated his family’s Ellsworth County farm to the KSU Foundation for the purpose of demonstrating the viability of conservation tillage systems. Thanks to his vision, K-State now operates a demonstration farm of 80 acres of crop land and 80 acres of pasture in the south central part of the state. He is survived by his wife Barbara and many relatives.

Dr. Abdul Basher Shakhawat Hossain retired from the position of director, Wheat Research Centre of Bangladesh Agricultural Research Institute. He served various positions in the Wheat Research Centre for about 30 years. During his career, more than 20 wheat varieties were released. He also worked as Affiliate Scientist for CIMMYT Bangladesh Dhaka. He received a gold medal in 1979 for outstanding contribution in the field of wheat research from a trust in Bangladesh. He is now working as Country Coordinator in an ACIAR-sponsored wheat project. He is married to Momtaz Gegum, and the couple has two sons. He received his Ph.D. in Agronomy from K-State in spring 1988. His email address is a.hossain@cgiar.org

Ms. Katie B. (Wilson) Hancock, who graduated with a B.S. in Agronomy in 2006, is now with USDA-NRCS in Eureka, Kansas. She was previously with the NRCS office in Winfield. She married Travis Hancock in September 2008.

We want to hear from you!

Name(s):

Address:

Email:

Graduation date(s) and degree(s):

Family information (spouse, children, hobbies, etc.):

Briefly detail your professional activities since leaving K-State:

What special features would you like to see in future newsletters?

Email information to swatson@ksu.edu, or mail to Steve Watson, Newsletter Editor, Department of Agronomy, 2714 Throckmorton Hall, Kansas State University, Manhattan, KS 66506
Did you Know...
How many square feet of soil does it take to grow 1 bushel of wheat?

Field to Table
How many pizza crusts can be made from 1 bushel of wheat?

1 bushel of wheat will make about 150 cups of flour
2 cups of flour will make 1 pizza crust
1 bushel of wheat will make 75 pizza crusts

KS = 33 /acre or 2475 /acre

The Kansas average wheat yield in 2007 = 33 bushels of wheat/acre or 2475 pizzas/acre
Total Kansas wheat yield in 2007 was 284 million bushels, or over 21 billion pizzas

To grow 1 bushel of wheat on the average Kansas farm, you would need 871 square feet of land
How big is 871 square feet?
Count the number of floor tiles beneath your feet to find out
(Each floor tile is 1 square foot in area)


Dr. Craig F. Morris, is Director, USDA-ARS Western Wheat Quality Laboratory in Pullman, Washington. He received his Ph.D. in Agronomy from K-State in 1987. He was recently elected as a director of AACC (American Association of Cereal Chemists) International. He can be reached at morrisc@wsu.edu

Mr. Norman E. Schlesener, who received his B.S. in Agronomy from K-State in 1956 and his M.S. in Agronomy from K-State in 1967, has made six visits to Nicaragua since retiring. These trips were with Self-Help International, an NGO based in Iowa which promotes high lysine corn planting to improve diets. He served for 32 years as agricultural Extension agent in Ottawa, Barton, and Kingman Counties. He also spent more than two years in Nigeria on a KSU-AID contract. He is married to Mary Alice, and the couple has two daughters.

Kansas State University
Department of Agronomy
Throckmorton Hall
Manhattan, KS 66506-5501

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